



सत्यमेव जयते

R E P O R T
ON
LOCATION AND UTILISATION
OF
WASTELANDS IN INDIA
PART VII—KERALA

सत्यमेव जयते

**WASTELANDS SURVEY AND RECLAMATION
COMMITTEE**

**(MINISTRY OF FOOD AND AGRICULTURE)
GOVERNMENT OF INDIA**

MARCH, 1961.

and Union Territories, with a request that their replies should be forwarded to the Committee by the 25th September, 1959. This questionnaire sought information mainly on the availability of wastelands in blocks of 1,000 acres or more and the prospects of resettlement in each State. Subsequently, as a result of the Committee's discussions with the Liaison Officers of the Punjab and Madhya Pradesh, it was felt that the availability of wastelands in blocks of 1,000 acres or more might be limited, and it was decided to obtain detailed information in respect of all blocks of wastelands measuring 250 acres or more. Accordingly, a letter was issued to all the State Governments (Appendix C) asking for this information.

5. It was laid down in the terms of reference that the Committee should complete its work and submit its proposals in respect of one State in about a month and then proceed to take up investigation in another State. The Committee, however, felt that such a procedure was neither feasible nor advisable as the different State Governments did not have the information required by the Committee readily available and the process of collection took some time. In some cases, special surveys had to be organised. The Committee, therefore, decided that it might take up investigations in respect of the following eight States together in the first phase, viz., Punjab, Madhya Pradesh, Bihar, Kerala, West Bengal, Orissa, Andhra Pradesh and Mysore, and then take up the remaining States. But for this procedure, the work of the Committee would have been very much delayed.

6. After the reports in respect of the different States have been submitted, a general report covering the entire country will be presented which, *inter alia*, will deal with priorities between the different categories of reclaimable lands in the different States.

7. The report for each State will be divided into four sections. Section A will contain general observations about the State regarding its climate, soils, crops grown, irrigation facilities available, etc. Section B will deal with the areas offered for reclamation, their general characteristics, measures necessary for bringing the wastelands under cultivation, and the cost of reclamation. Section C will contain suggestions for follow-on and resettlement operations, if any, the estimated additional production from the reclaimed areas, and priorities between the different categories of reclaimable lands. In Section D, a summary of general conclusions and recommendations will be presented.

Problem

8. The main object of the Committee was to make a survey of lands classified as "other uncultivated lands excluding fallow lands" and "fallow lands other than current fallows", and locate large blocks for reclamation and resettlement.

9. In order to avoid ambiguity in the appraisal of the lands available in each of the above two categories, it is necessary to define the two terms. The classification of land-use adopted by the Directorate of Economics and Statistics, Union Ministry of Food and Agriculture, is nine-fold as under—

- (i) forests,
- (ii) barren and unculturable lands,
- (iii) land put to non-agricultural uses,
- (iv) permanent pastures and meadows,

(iii)

- (v) areas under miscellaneous trees and crops,
- (vi) culturable waste,
- (vii) current fallows,
- (viii) fallows other than current fallows, and
- (ix) net area sown.

The lands classified under categories (iv), (v) and (vi) are grouped together and designated as "other uncultivated lands excluding fallow lands". The category "culturable waste" is defined to include all lands available for cultivation but not taken up for cultivation or abandoned after a few years for one reason or the other. Such lands may be fallow for more than five years and may be covered with shrubs and jungle. They may be assessed or unassessed, and may lie in isolated patches or blocks or within cultivated holdings. Lands reserved as pastures for grazing are not included under "culturable waste". Similarly, fallows of one year are classified as "current fallows", while those of 2-5 years are classified as "fallows other than current fallows". Lands left for growth of miscellaneous trees like bamboo, casuarina, fuel trees, etc. are not classified as "culturable waste".

10. Although the classification suggested by the Ministry of Food and Agriculture has been adopted in all the States, the Committee was informed during the course of discussions with the State officials that the concept of "other uncultivated lands excluding fallow lands" was not yet clearly understood. Lands which were classified as "culturable waste" at the time of settlement some years ago still continue to be shown as such in the revenue records even though they cannot be made culturable after incurring any reasonable expenditure. Similarly, some of the lands which are culturable continue to be classified as barren and unculturable or pasture lands. In some other cases, the pasture lands have been included in the category of culturable waste. Further, the category "other uncultivated lands excluding fallows" is treated as a sort of residual class in which are included all lands not accounted for under any other class.

11. In view of these considerations, we are of the view that the areas included in the two categories, viz., "other uncultivated lands excluding fallow lands" and "fallow lands other than current fallows" may not fairly represent the actual extent of culturable wastelands in the country, and accordingly much reliance cannot be placed on the statistics supplied by the State Governments. The mere collection of statistics under the head 'culturable waste' can serve but little purpose unless detailed information on the types of wasteland available in each State, the ownership of such lands, their availability in sizeable blocks and the cost of reclamation measures is available. We were glad to note that some of the States had realised the importance of collecting such statistics and had either started the necessary surveys or were preparing to do so for achieving the above object. This is a step in the right direction and any assistance that the Central Government can give in this matter will greatly facilitate the collection of vital statistics on proper land use. For the purpose of our report, we have relied on the data furnished to us by the revenue/agricultural agency of each State

12. As regards resettlement, the terms of reference of the Committee enjoin upon it to locate areas where large blocks of land are available for reclamation and resettlement. We consider that the resettlement work is not the be-all and the end-all of our labours and that the main job is to locate lands which can be reclaimed and brought under the plough for increasing the food resources of the country. We have, therefore, suggested resettlement schemes only in cases where food production would be hindered without resettlement work.

13. We have viewed the entire problem mainly from an agricultural angle, but at the same time, we have tried to deal with matters which go beyond the purely agricultural aspect of the subject, for we do recognise that the problem of utilisation of wastelands involves not merely the adoption of agricultural techniques but an appreciation of a variety of human and social aspects.



PREFACE

The report deals with the availability of wastelands in large-sized blocks in Kerala and the measures to be taken for their reclamation.

2. With a view to acquiring some knowledge of the wastelands in the State, we undertook a tour of the districts of Trichur, Ernakulam and Kottayam, and visited a few settlement projects undertaken by the State Government. We had discussions with the officials of the State Government on the 19th March, 1960, with regard to the availability of wastelands in the State and the problems connected with their reclamation and disposal. On the 30th November, 1960, the draft report of the Committee was discussed and finalised.

3. We wish to express our gratitude to Shri P. J. Francis, Secretary, Board of Revenue, Government of Kerala, who, in his capacity as Liaison Officer, furnished the necessary data required by the Committee. Our thanks are also due to Shri Sukumaran Nair, Joint Director of Agriculture, who accompanied us during our tour and was very helpful.

4. We are highly indebted to Dr. S. P. Raychoudhuri, Chief Soil Survey Officer, Indian Agricultural Research Institute, for furnishing the data on the soils of the State, and for allowing us to make use of the facilities at the cartographic laboratory of the Institute in printing the maps included in the Report.



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SECTION A

(General aspects)

General aspects

The State of Kerala has nine districts, namely, Trivandrum, Quilon, Alleppy, Kottayam, Ernakulam, Trichur, Palghat, Kozhikode and Cannanore. The total geographical area of the State is 15,000 sq. miles.

2. Kerala is the smallest State in the country. According to the 1951 census, the population of the State is 1·35 crores. It is the most densely populated State, there being 904 persons per sq. mile as against 287 persons for the country as a whole. About 13·5 per cent of the population lives in towns, whilst the remaining 86·5 per cent reside in villages. About 54 per cent of the total population depends on agriculture for their livelihood. Agricultural labour constitutes the most numerous single occupation with 21·1 per cent of the total and 39·3 per cent of the total agricultural classes.

3. Kerala is a land of mountains. Based on physical features, the State can be divided into three natural belts as follows :—

- (i) The lowlands or the flat coastal strip,
- (ii) The midlands consisting of the undulating hills and valleys east of the lowlands, and
- (iii) The mountainous highlands with rich fertile lands at the foot covered with thick virgin forests, on the extreme east.

4. The backwaters are a peculiar feature of Kerala. The coastal area is fringed with backwaters, which are connected by canals, so that there is an uninterrupted inland water communication from Trivandrum to Tirur, a distance of 220 miles. The entire State is intersected by several rivers, flowing from the Western Ghats to the sea.

Climate

5. The State has a wide range of climate, from cold in the mountain to the oppressive heat of the plains. Humidity is very high. The south-west monsoon sets in about the first week of June and comes to an end in September. This is followed by the north-east monsoon. Dry weather sets in by the end of December and continues until the end of March. The rainfall is very heavy, ranging from 68" at Trivandrum to over 200" on the High Range in the Kottayam district. In Kerala floods cause more damage to crops than drought.

Soils

6. The soils of Kerala may be classified into alluviums, peaty soil, red soil, laterite and forest soil (*vide* Map I).

6·1. Alluvial soils are generally found along the coast in a strip running from north to south. The soil is sandy, poor in fertility and of low water-holding capacity. The water-table is near the surface. Fertile lands of sandy soils impregnated with silt are found near the mouths of rivers, and as *kole* lands in the Trichur taluka.

6.2. Peaty or *kari* soils are peculiar soil formations found in the low-land areas of Central Kerala round about Vembanad lake. The soils are black in colour, rich in organic matter and potash, but poor in available phosphates. They are highly acidic. These lands remain under water during the monsoon, and are inundated by sea-water when the rains have stopped. The main problems of these soils are high acidity, impeded drainage, and sub-soil toxicity.

6.3. Red soils occur over a greater part of the midland region, particularly in the Cannanore and Kozhikode districts. The soils are deep with a uniform texture. They are deficient in plant nutrients and organic matter. The pH of these soils is between 6 and 7.

6.4. Laterite and lateritic soils occur in a strip running from north to south, in the midland and highland regions. Both high level and low level laterites (i.e., laterites at higher elevations and at lower elevations) occur in the strip. The soil is shallow in depth. It is sandy loam to loam at higher elevations, with a harder layer below overlying the laterite. At lower elevations it is loam to clay loam with the laterite underneath. The soils are slightly acidic, and plantation crops grow well in these soils.

Irrigation

7. Of the total cropped area of 53,82,000 acres in 1956-57, 8,29,000 acres received the benefit of irrigation. The main source of irrigation is canals, which irrigated about 50 per cent of the irrigated area. Wells and tanks account for 13 per cent of the irrigated area. The main crop grown under irrigation is rice which covers about 66 per cent of the total irrigated area.

Crops grown and yields obtained

8. Rice is the principal food crop of the State, and occupied an area of 18,83,000 acres, or 35 per cent of the total cropped area, during 1956-57. The crop is grown in the summer, autumn and cold season. The other food crops are tapioca, *ragi* (*Eleusine coracana*) and jowar.

8.1. The State grows a variety of commercial crops, viz., cocoanut, arecanut, pepper, cardamom, cashewnut, lemongrass, bananas, ginger; etc. Cocoa-nut alone occupies an area of 11,07,000 acres, or 21 per cent of the cropped area. Tea, coffee, and rubber are other commercial crops of great economic value.

8.2. During 1956-57, the total production of rice was 8,62,000 tons, tapioca 15,69,000 tons, *ragi* 7,000 tons, and jowar 2,000 tons. Among the spices, pepper accounted for 26,800 tons, cardamom 1,242 tons, and ginger 10,700 tons. The rubber production was of the order of 21,000 tons. The average yields of the important crops grown in the different districts are given in Appendix D.

SECTION B

(Description of blocks and measures for reclamation)

Land utilisation

9. According to the land utilisation statistics, the State of Kerala has an area of 9.43 million acres classified as under :—

	Acres (million)
1. Forests	2.46
2. Land not available for cultivation—	
(a) Barren and unculturable land	0.50
(b) Land put to non-agricultural use	0.53
3. Other uncultivated land excluding fallows—	
(a) Culturable waste	0.44
(b) Permanent pastures and other grazing lands	0.12
(c) Land under miscellaneous tree crops and groves	0.50
4. Current fallows	0.16
5. Fallows other than current fallows	0.20
6. Net area sown	4.52
Total	9.43

10. It will be observed that the total area classified as “other uncultivated land excluding fallows” is 1.06 million acres, while the area classified as “fallows other than current fallows” is 0.2 million acres. The district-wise distribution of the areas under these two heads is shown in Appendix E.

11. Of the total area of 1.26 million acres under the heads “other uncultivated land excluding fallow lands” and “fallows other than current fallows”, the Government of Kerala have offered only seven blocks for reclamation, comprising about 56,000 acres in blocks of the sizes of 250 acres or more. The percentage of area available in blocks of 250 acres or more to the area under culturable waste (the main head under which wastelands could be located) is thirteen per cent. On an enquiry about the remaining areas, we were informed that the figures as reported in the revenue records might be discounted, and that most of the wastelands in the State were scattered in small bits, a large proportion of which had already been brought under cultivation unauthorisedly.

12. The distribution of wastelands in the different districts is given below:

District	Block No.	Area (acres)
Kozhikode	1	3,323
Trichur	2	500
Palghat	3	500
	4	500
Ernakulam	5	500
Kottayam	6	42,604
Trivandrum	7	8,000
Total		55,927

12.1 We were informed that in the Kuttanad, over 1,20,000 acres were at present growing one crop of paddy since this area was subject to inundation by sea-water. It was suggested that, if suitable measures were adopted, such as the construction of bunds to prevent the ingress of salt-water and the provision of irrigation facilities, much of this area could be double-cropped. The construction of the Thottapilly spillway and the Thanirmukham barrier would bring a large proportion of this area under their irrigation command. It was estimated that at least 50,000 acres in the Upper Kuttanad could thus be easily converted into double-cropped lands at a cost of Rs. 500-600 per acre. Although these lands are being cultivated, we have considered it necessary to make a special mention of them in our report because of their great promise for increasing agricultural production by improving their potential for intensive cultivation. With the construction of bunds these marshy areas are further capable of being developed into lands suitable for cocoanut cultivation by growing paddy crops in them successively for four or five years.

13. Map II shows the location of the blocks of wastelands in the different districts.

14. A few comments in respect of each block are given below, while fuller details are tabulated in Appendix F.

15. *Block 1* comprising 3,323 acres, is situated in Pannikode Amsom of Tennamangalam Firka, in the Kozhikode district. The entire area is infested with weeds and shrubs and can be reclaimed with the help of manual labour which is locally available. The soil is alluvium and the land is more or less level, but in a few places, it is slightly slopy. The latter areas will have to be contour-bunded. The block is located in an area receiving a rainfall of about 110 inches. No irrigation is available. The cost of reclamation is estimated Rs. 250 per acre.

16. *Block 2* is located in village Periyaram, in Mukundapuram taluka of the Trichur district. The entire area of about 500 acres which is now with the Forest Department, is proposed to be transferred to the Revenue Department. Most of the area is already being cultivated unauthorisedly. The rainfall ranges from 130 to 150 inches. The soil is black and fertile. The land is even and there is sufficient soil-depth to support crops like paddy, tapioca, etc. Perennial irrigation facilities will be available after the completion of the second stage of the Sholayar project.

17. *Blocks 3 and 4* are located in the Attapady Valley of the Palghat district, which is a vast hilly area covered with forests. The entire valley is in the Community Development Block, Mannarghat.

17.1. *Block 3* comprising 500 acres, is located in Agali Amsom, and is bounded on the east by the Siruvani river, on the west by the Thummapare cardamom gardens and hills, on the south by the Muthukulam Reserve Forest, and on the north by private estates. The area is overgrown with trees and bushes and will have to be cleared with the help of tractors. The area receives a rainfall of 130 to 150 inches. The soil is black and very fertile. There is possibility of providing perennial irrigation from natural channels.

17.2. *Block 4* is situated in Pudur Amsom and is bounded on the east by the land adjoining Choornagada Hamlet, on the south by the hills, on the north by the Nilghris district, and on the west by the Reserved Forest. Land reclamation will consist of jungle clearance. The area has an annual rainfall of 130 to 150 inches. The soil is black and very fertile. In this block also perennial irrigation can be provided from natural channels.

17.3. The cost of reclamation in these two blocks is estimated at Rs. 250 per acre.

17.4. As stated earlier, blocks 3 and 4 form part of the Attapady valley which is about 280 sq. miles in extent and comprises 80 sq. miles of Government forests and 200 sq. miles of private forests. According to the District Collector, Palghat, there are large areas of wastelands in the valley, but these are available mostly in blocks of less than 250 acres in extent. A rapid reconnaissance survey should be carried out to locate the blocks of wastelands, so that steps may be taken to bring them under cultivation.

17.5. The Attapady valley is situated at an elevation of 1,750 ft. to 7,000 ft. The rivers Bhawani and Siruvani flow through it. The rainfall of the valley ranges from 80 inches in the strip bordering the Coimbatore district to 200 inches in the forest areas. The tribals form the bulk of the population of 15,000 persons. They prefer shifting cultivation to permanent settlement. At present only dry crops are grown. With the construction of the road from Mannarghat to Agali and thence to Chinnathadagam in the Coimbatore district, the valley is now easily accessible. We suggest that a comprehensive scheme for the development of wastelands in the valley should be formulated, and to this end, the following steps would appear to be necessary :—

- (a) A rapid reconnaissance survey should be conducted for the location of wastelands in the valley.
- (b) Construction of bunds across the Kookampalayam and Golikkadavan streams with a view to augmenting irrigation water supply

- (c) Improvement of the Anakketty-Sholayur road.
- (d) Settling tribal families on the land by providing them with such amenities as houses, dispensaries, etc., and weaning them from the practice of shifting cultivation by demonstration of the improved methods of cultivation on reclaimed lands.

18. *Block 5* is located in village Elankunnappuzha, in the Ernakulam district. The block has been formed by accretion, and it is still growing in size. No survey has been conducted, but the area of the block is likely to be about 500 acres. The land is infested with bushes and shrubs and is marshy. These marshy lands will have to be filled with earth in order to make them fit for cultivation. The work of filling may be done by manual labour, but a dredger can do the work much quicker and at lower cost. The soil is alluvium and good for growing paddy. The area receives a rainfall of about 120 inches. The cost of reclamation is likely to be heavy, and it may cost Rs. 2,000 to reclaim an acre of land by manual labour.

19. *Block 6* comprising 42,604 acres of wastelands consists of five sub-blocks, and is located in the Munnar area, in the Kottayam district. This area forms part of the concessional grant of 1,37,432 acres of land in the Devicolum taluk, which was made by the then Government of Travancore to the North Travancore Land Planting and Agricultural Society Ltd. The extent of the area in each of the five sub-blocks is as shown below :—

Sub-block	Area (acres)
A	20,806
B	13,799
C	3,558
D	2,770
E	1,671
Total	42,604

19-1. A brief description of the above five sub-blocks is given below:—

(i) *Sub-block A* forms the heart of the Kannan Devan Game Sanctuary and is mainly grassland rising from 3,500 ft. to 5,800 ft. The land is mostly steep, and there is sparse tree growth along the edges of ravines and streams. The top soil is hard and impermeable due to repeated fires, but the substratum is not rocky. The area is swept by winds of high velocity, which make agricultural operations difficult. Extensive wind belts will have to be established before an attempt is made to cultivate the blocks. The area receives a rainfall of about 120 inches. It is suitable for afforestation, and forest species like *Alnus nepalensis* good for match splints, red gum and wattle may be tried.

(ii) *Sub-block B* is a wooded valley, which is fairly well protected from wind on all sides. The land is fertile lying between 3,000 ft. and 4,000 ft. above mean sea-level, and is intersected by several streams. Several tribal families have already settled in the area. The rainfall in the area is very heavy. About one-third of the area is suitable for growing cardamom, rubber and chickory. The area is now inaccessible from the plains as the old Kothamangalam-Munnar road is in a badly damaged condition.

(iii) *Sub-blocks C, D and E.*—These sub-blocks are not quite suitable for reclamation or for setting up colonisation schemes as they consist of lofty hills and steep valleys. The lands are situated at about 8,000 feet above sea-level. The climate is not healthy. The area is also infested with wild animals. According to the report of the Collector, Kottayam, even forest trees may not thrive in the area. The means of communication are poor. The cost of reclamation is likely to be high.

19.2. To sum up, it may be stated that the entire area offered for reclamation in the Kottayam district is not useful for successful agricultural operations except for a small portion in sub-block B which can be utilised for growing cardamom, rubber and chickory. The remaining areas mostly consist of lofty hills and valleys. The cost of reclamation of land situated at high altitudes will not be remunerative.

20. *Block 7* comprising about 8,000 acres is located in a narrow strip of littoral sand of an average width of one mile running from south to north, from Veli Kayal to Kadinamkulam, over a distance of 8 miles in the Trivandrum district. Irrigation can be provided by installing filter-point tube-wells. The area is suitable for establishing cocoanut plantations. The cost of irrigation is estimated at Rs. 800 per acre, in addition to an expenditure of Rs. 1,000 per acre on the digging of pits for planting, transport of manure and silt for incorporation into the sandy soils, the price of seedlings, etc.

SECTION C

(Disposal of reclaimed lands for cultivation)

21. *Nature of ownership of wastelands and their disposal for cultivation—*
In the State of Kerala, the wastelands are owned by the Government and by private individuals. The break-down of wastelands according to their ownership in the different blocks is given below:—

District	Block No.	Area of block (acres)	Area belonging to	
			Private individuals (acres)	Government (acres)
Kozhikode	1	3,323	3,323	..
Trichur	2	500	..	500
Palghat	3	500	500	..
	4	500	500	..
Ernakulam	5	500	..	500
Kottayam	6	42,604	42,604	..
Trivandrum	7	8,000	..	8,000

22. The problems involved in the disposal of wastelands in these two categories are discussed below:—

22.1. *Private lands*—The entire area of 3,323 acres in the Kozhikode district belongs to a private company which holds absolute proprietary rights over it. The company is not in favour of leasing out these lands for cultivation. These lands will have to be acquired before they can be disposed of to landless labourers, the members of the Scheduled Castes and the Scheduled Tribes, etc., for cultivation. The cost of acquisition is likely to be Rs. 200 per acre. Similarly, the lands located in the Palghat district cannot be brought under cultivation even after reclamation as the ownership of these lands is under dispute. The cost of acquisition of these lands will be about Rs. 100 per acre. The lands in block 6 are not fit for cultivation.

22.2. *Government lands*—As regards lands belonging to the Government, it may be stated that block 2 is already being cultivated unauthorisedly. The lands in block 5 are fertile and can produce good crops of paddy. These lands may be allotted after reclamation to landless labourers, the members of the Scheduled Castes and the Scheduled Tribes, etc., or to cultivators who have no lands of their own and who may be willing to do co-operative farming under the co-operative colonisation schemes which the State Government propose to undertake during the Third Plan period. Under this scheme, each colony will be granted a loan subject to a maximum of Rs. 600 per acre of land allotted to the colony, with interest at 4 per cent. The loan will be repaid by the colony with interest over a period of 10 years.

22·2·1. During the initial period, the land may be assigned to cultivators for cultivation, and most of the services may be provided by a service co-operative. After the lapse of some time when the spirit of co-operation has developed in the colonists, co-operative farming may be encouraged. The colonists will not have the right to alienate their lands. The land to be allotted to each settler, will be heritable, but will be on impartible tenure.

22·3. As stated earlier, the lands in block 7 are suitable for growing coconut, but since the cost of their development is high, it is suggested that loans may be advanced to local cultivators under the horticultural development scheme, which provides for the re-payment of loans in ten annual instalments, commencing from the sixth year of the grant of loan.

23. *Crop patterns*—The general crop patterns in the Kerala State are as under:—

23·1. In Malabar, arable lands are divided into wet, dry and garden lands. Paddy is almost exclusively cultivated in wet lands, although in some areas coconut, arecanut and jack trees are grown in these lands. On the dry and garden lands, crops of hill paddy, *samai* (*Panicum miliare*) and gingelly are raised every few years.

23·2. Wet lands grow one crop, two crops, and sometimes three crops of paddy. Two-crop lands are common. The first crop of paddy (*kanni*) is sown in April or May, and is harvested in September or early in October. On two-crop lands the second crop of paddy (*makaram*) is sown immediately thereafter, and is harvested about the end of January. On some lands which have adequate water supply in the summer, the hot weather crop (*meda punia*) is grown after the harvesting of the *makaram* crop.

23·3. Wet cultivation in lake-beds and the back-waters (*kaval*) is a peculiar feature of the districts of Trichur, Kottayam, etc. The fields or *kols* are under water during the monsoon, and after the rains are over, strong bunds are constructed around the fields, from which the water is pumped out to make them fit for growing paddy. During the hot weather fresh water is pumped back from the natural channels into the fields to irrigate the crops.

23·4. On the low hills *modan* or hill paddy is grown. The normal rotation is *modan*, gingelly and *samai* (*Panicum miliare*), but on better types of land, a crop of ginger is grown before the *modan*.

23·5. Ginger is a valuable crop of the State. It is planted in May, and is harvested in December-January. Coconut thrives on the alluvial deposits of silt and sand found at the mouth of rivers and near back-waters. It is grown on the lower slopes of the lateritic hills. Tapioca is extensively cultivated in the midland belt of the coast. Cashewnut is grown in lateritic soil in situations where paddy and coconut cannot grow. Tea, rubber, coffee and cardamom are grown in the high ranges.

Economic aspects of reclamation

24. We shall now examine the economic aspects of reclamation in the various blocks of reclaimable lands in terms of additional production *vis-a-vis* the expenditure involved.

25. The lands in block 1 are fertile, but have no irrigation facilities. On a conservative estimate, about 800 lb. of rubber or 2 tons of tapioca. can be obtained from these lands. The lands in block 2 are already under cultivation. The valley lands included in blocks 3 and 4 can yield about 30 maunds of paddy per acre. The swampy areas included in block 5 will, after reclamation, produce paddy crops yielding 15 maunds per acre. As regards block 6, the areas offered for reclamation are not suitable for growing agricultural crops. The lands in block 7 are fit for cocoanut cultivation. The average return from a cocoanut plantation is about Rs. 400 per acre from the tenth year onwards, as against the initial expenditure of Rs. 1,800 per acre on the establishment of the plantation.

26. In order to assess the relative economic benefits of reclamation between the different blocks, the figures of estimated additional production should be studied in relation to the cost of reclamation. Table I gives the area proposed for reclamation in each block, the cost of reclamation, the additional food production, and the cost of reclamation per maund of additional production.



TABLE I
Cost of reclamation of land in different blocks and estimated additional production

District	Block No.	Area proposed for reclamation (acres)	Average cost of reclamation per acre (Rs.)	Total cost of reclamation (Rs.)	Additional production per acre (maunds)	Total additional production (maunds)	Value of additional production (Rs.)	Value of additional production per acre (Rs.)	Average cost of reclamation per maund of additional production (Rs.)
Kozhikode	1	3,323	250	8,30,750	55 (tapioca)	1,82,765	2,74,147	82.50	4.54
Trichur	2	500	..	..	a.	..	..	..	..
Palghat	3	500	250	1,25,000	30 (paddy)	15,000	1,87,500	375	8.33
	4	500	250	1,25,000	30 (paddy)	15,000	1,87,500	375	8.33
Ernakulam	5	500	2,000	10,00,000	15 (paddy)	7,500	98,750	187.50	133.33
Kottayam (Munnar area)	6	42,604	..	..	b.	..	..	..	..
Trivandrum (Veli-Kadnamkulam Kayal area).	7	8,000	..	..	c.	..	..	..	..
Total		55,927	..	20,80,750	..	37,500 (paddy) + 1,82,765 (tapioca)	7,42,897	..	..

a. The area is already under cultivation.

b. These areas are not suitable for cultivation.

c. Suitable for establishing coconut plantation only. Reclamation highly remunerative.

NOTE—An average price of Rs. 1.50 per maund of tapioca and of Rs. 12.50 per maund of paddy is assumed.

27. It will be seen from the table that the cost of reclaiming 5,323 acres of land included in blocks 1 to 5 comes to Rs. 20·80 lakhs, *i.e.*, about Rs. 400 per acre. The estimated additional production from the reclaimed lands is 37,500 maunds of paddy and 1,82,765 maunds of tapioca, valued at Rs. 7·43 lakhs. Thus, the value of production will cover the cost of reclamation in two to three crop seasons.

28. As regards the economics of reclamation of the different blocks of wastelands, the lands included in blocks 2—4 would appear to be the most profitable in terms of the additional food production per acre, followed by block 1. The cost of reclamation of the marshy areas included in block 5 is heavy, and the returns are not commensurate with the expenditure involved. As regards the lands in the Munnar area of the Kottayam district (block 6), they are not suitable for cultivation. The cost of reclamation is also high.

29. In view of what has been stated in paras 25 and 28 above, we recommend that the following order of priority may be assigned to the different areas—

				Priority
Blocks 2-4 & 7	I
Block 1	II
Block 5	III



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SECTION D

(Summary of general conclusions and recommendations)

1. Of the total area of 1.26 million acres under the heads "other uncultivated land excluding fallows" and "fallows other than current fallows" only seven blocks comprising 56,000 acres have been located in the State in blocks of 250 acres or more. (Paragraph 11)

2. The distribution of wastelands in the different districts is given below:—

District	Block No.	Area (acres)
Kozhikode	1	3,323
Trichur	2	500
Palghat	3 & 4	1,000
Ernakulam	5	500
Kottayam	6	42,604
Trivandrum	7	8,000
Total ..		55,927

3. In the Kuttanad, over 1,20,000 acres are at present growing one crop of paddy since this area is subject to inundation by sea-water. If suitable measures are adopted, such as the construction of bunds to prevent the ingress of salt water and the provision of irrigation facilities, much of this area can be double cropped. The construction of the Thottapilly spillway and the Thanirmukham barrier will bring a large proportion of this area under their command. It is estimated that at least 50,000 acres in the Upper Kuttanad can be easily converted into double-cropped lands at a cost of Rs. 500—600 per acre. These areas are capable of being developed into lands suitable for cocoanut cultivation by growing paddy crops in them successively for four or five years.

(Paragraph 12.1)

4. The lands in the Kozhikode district are infested with weeds and shrubs. The soil is fertile. No irrigation is available. The cost of reclamation is estimated at Rs. 250 per acre.

(Paragraph 15)

5. Most of the lands located in the Trichur district are already being cultivated unauthorisedly. The soil is fertile. Perennial irrigation will be available after the completion of the second stage of the Sholayar project.

(Paragraph 16)

6. The wastelands in the Palghat district are located in the Attapaddy valley which is a vast hilly area of about 280 sq. miles covered with forests. The soil is very fertile. There is possibility of providing perennial irrigation from natural channels. The cost of reclamation is estimated at Rs. 250 per acre. (Paragraph 17)

7. A comprehensive scheme for the development of wastelands in the Attapaddy valley should be formulated which would include a rapid reconnaissance survey for locating blocks of wastelands, construction of bunds across the Kookampalayam and Golikkadavu streams for augmenting irrigation water supply, improvement of Anakketty-Sholayur road, and settling tribal families on the land. (Paragraph 17)

8. The block of wastelands located in the Ernakulam district is a marshy area, and is infested with bushes and shrubs. The soil is alluvium. The cost of reclamation involving the clearance of bushes and shrubs and filling the area with earth, is estimated at Rs. 2,000 per acre. (Paragraph 18)

9. The wastelands in the Kottayam district are located in the Munnar area. The areas mostly consist of lofty hills and steep valleys and hence are not suitable for cultivation. (Paragraph 19)

10. The wastelands in the Trivandrum district are located in a narrow strip of littoral sand of an average width of one mile running from south to north, from Velikayal to Kadinamkulam. The area is suitable for establishing coconut plantations. The cost of irrigation is estimated as Rs. 800 per acre, in addition to an expenditure of Rs. 1,000 per acre on the digging of pits for planting, transport of manure and silt for incorporation into the sandy soils, the price of seedlings, etc. (Paragraph 20)

11. The wastelands belonging to private individuals will have to be acquired before they can be disposed of to landless labourers, the members of the Scheduled Castes and the Scheduled Tribes, etc. The cost of acquisition is estimated at Rs. 100—200 per acre.

12. The lands belonging to the Government, after reclamation, may be allotted to landless labourers, members of the Scheduled Castes and the Scheduled Tribes, etc., or to actual cultivators who have no lands of their own and who may be willing to do co-operative farming under the Co-operative Colonisation scheme proposed by the State Government to be undertaken during the Third Plan period. (Paragraphs 22.2 and 22.3)

13. The cost of reclaiming 5,323 acres of wastelands located in the districts of Kozhikode, Trichur, Palghat and Ernakulam comes to about Rs. 20.80 lakhs, i.e., about Rs. 400 per acre. The estimated additional production from the reclaimed lands is 37,500 maunds of paddy and 1,82,765 maunds of tapioca valued at Rs. 7.43 lakhs. Thus the value of production will cover the cost of reclamation in two or three crop seasons. (Paragraph 27)

14. The wastelands found in the district of Trichur and Palghat would appear to be the most profitable in terms of the additional food production

per acre, followed by the block in the Kozhikode district. The cost of reclamation of the marshy area in the Ernakulam district is not commensurate with the expenditure involved. The wastelands in the Munnar area (block 6) are not suitable for cultivation.

15. The following is the order of priority assigned to the areas included in blocks 1—5, and 7.

	Priority
Blocks 2-4 & 7	I
Block 1	II
Block 5	III

(Paragraph 29)

Sd.

(B. N. Uppal)

Chairman



Members

- Sd.*
1. J. P. Mital
Sd.
2. F. C. Gera
Sd.
3. M. S. V. Rama Rao

*Co-opted
members
from the State*

- Sd.*
(C. K. Keralavarma)
Revenue Secretary
Sd.
(P. M. Mathew)
Director of Agriculture
Sd.
(T. P. Kuttiamu)
Chief Engineer (Irrigation)

Sd.

(A. S. Venu Gopalan)

Secretary

APPENDICES

<i>No.</i>	<i>Subject</i>	<i>Pages</i>
A	Letter of appointment of the Committee	17—19
B	Questionnaire issued by the Committee	20—24
C	Clarification and amendment to the questionnaire ..	25—26
D	Average yield per acre of the principal crops in Kerala— (district-wise)	27
E	Land utilisation statistics for Kerala for the year 1956-57	28
F	Details of blocks offered for reclamation in Kerala ..	29



No. 12-1/59-GMF (Co.)

GOVERNMENT OF INDIA

MINISTRY OF FOOD & AGRICULTURE

DEPARTMENT OF AGRICULTURE

New Delhi, the 3rd February, 1960

SUBJECT—*Reclamation of culturable wastelands in the country—Setting up of a Committee.*

Reference this Ministry's Express letter of even number dated the 17th June, 1959, on the subject mentioned above. The following amendment may please be made in regard to the Membership of the Committee as mentioned in D.O. No.F. 1024/SPL/59 dated the 11th June, 1959, referred to therein :—

“Shri M.S.V. Rama Rao,
Senior Director of Soil Conservation,
Government of India,
in place of Dr. J. K. Basu since retired”.

(Sd.) V. BALASUBRAMANIAN

Under Secretary



APPENDIX 'A'

K. R. DAMLE. I.C.S.,
SECRETARY.

No. F. 1024/SPL/59

GOVERNMENT OF INDIA

MINISTRY OF FOOD AND AGRICULTURE
DEPARTMENT OF AGRICULTURE

New Delhi, June 11, 1959.

MY DEAR

You will agree that the importance of reclamation of culturable waste lands for the purpose of increased agricultural production cannot be over-emphasised. The extent of culturable waste lands in the country has been variously estimated and the figures run into millions of acres. These waste lands are of two categories .

- (a) lands which are really adjuncts of village abadis and are meant to serve as pastures and fuel forests or site for the extension of the abadis and
- (b) large blocks of land which have either gone out of cultivation or have never been brought under cultivation.

It is the latter category which affords the greatest promise for increased agricultural production. The site of large areas of uncultivated land has yet to be determined. Government, therefore, have decided to appoint a Committee of experts which will work in collaboration with experts in the States in regard to which the Committee will make the investigations.

2. The following will be the terms of reference of the Committee :—

- (1) to make a survey of land classified as "other uncultivated land excluding fallow lands" and "fallow lands other than current fallows" and locate areas where large blocks of land are available for reclamation and resettlement ;
- (2) to suggest suitable measures for reclamation according to conditions in different areas and estimate the cost of reclamation and colonisation and the financial assistance and agricultural extension and training necessary for the settlers (the settlements being made on a co-operative basis);
- (3) to suggest the terms and conditions upon which settlement should be made, the areas to be allotted and the payments to be made by settlers co-operatives; and
- (4) to estimate the economic aspects of such reclamation in terms of the expenditure involved, the likely addition to food production and the employment and income that would become available to settlers and their families and to lay down the priorities *inter-se* between different categories of reclaimable lands.

3. The Committee will consist of the following :—

- | | | |
|---|---------|-----------------|
| 1. Dr. B. N. Uppal, Agricultural Commissioner, Government of India | .. .. . | <i>Chairman</i> |
| 2. *Dr. J. K. Basu, Senior Director of Soil Conservation, Government of India | .. .. . | <i>Member</i> |
| 3. Shri F. C. Gera, Chairman, Central Tractor Organisation | | <i>Member</i> |
| 4. Shri J. P. Mital, Irrigation Adviser, Ministry of Community Development and Co-operation | .. .. . | <i>Member</i> |

In addition, the Committee will co-opt in individual States the following officers:—

1. The Development Commissioner ;
2. The Revenue Secretary ;
3. The Secretary of the Agriculture/Forest Department, or his nominee; and
4. A representative of the Irrigation Department.

4. During the course of the next two or three months, the Committee will take up preliminary work for collection of data with the help of the State Governments and will then visit individual States from the beginning of September, 1959. The intention is that the Committee should complete its work and submit its proposals in respect of one State in about a month and then proceed to take up the investigation in another State. In order to ensure effective coordination and speedy completion of the work, it is suggested that each State Government/Union Territory may kindly appoint a fairly Senior officer who would be able to devote sufficient time to the work of the Committee, help it in collecting the necessary information and carry on correspondence with it. The name and designation of the officer may kindly be communicated to Dr. B. N. Uppal, Chairman of the Committee.

5. In view of the urgent need for bringing wastelands, wherever available, under cultivation and thus increasing agricultural production, it is hoped that the State Governments would kindly extend their full co-operation and provide the necessary facilities for the work of this Committee.

Yours sincerely,

(Sd.) K. R. DAMLE

Chief Secretaries,

All States and Union Territories.

* On retirement of Dr. J. K. Basu, Shri M. S. V. Rama Rao, Senior Director of Soil Conservation, Govt. of India, was appointed a Member from the 3rd Feb., 1960 vide Memo. No. 12-1/59-GMF (Co), dated the 3rd February, 1960 (copy enclosed)

INTRODUCTION

Appointment of the Committee and the terms of reference

The uncultivated lands in the country may be broadly classified into the following two categories—

- (a) Lands which are really adjuncts of village *abadis* and are meant to serve as pastures and fuel forests or sites for the extension of *abadis*, and
- (b) lands in large-sized blocks which have either gone out of cultivation or have never been brought under cultivation.

2. With a view to utilising the latter category of lands which afford the greatest promise for increased agricultural production, the Government of India constituted a Committee, *vide* their letter No. F/1024/Spl/59, dated the 11th June 1959 (Appendix A), with the following terms of reference—

- (i) to make a survey of land classified as “other uncultivated land excluding fallow lands” and “fallow lands other than current fallows” and locate areas where large blocks of land are available for reclamation and resettlement,
- (ii) to suggest suitable measures for reclamation according to conditions in different areas and estimate the cost of reclamation and colonisation and the financial assistance and agricultural extension and training necessary for the settlers (the settlements being made on a co-operative basis),
- (iii) to suggest the terms and conditions upon which settlement should be made, the areas to be allotted and the payments to be made by settlers’ co-operatives, and
- (iv) to estimate the economic aspects of such reclamation in terms of the expenditure involved, the likely addition to food production and the employment and income that would become available to settlers and their families and to lay down the priorities *inter se* between different categories of reclaimable lands.

3. In order to ensure effective co-ordination and speedy completion of the work, each State Government/Union Territory was asked by the Government of India to appoint a fairly senior officer who would be able to devote sufficient time to the work of the Committee, help it in collecting the necessary information and carry on correspondence with it. This procedure facilitated the work of the Committee to a great extent in obtaining relevant data from the State Governments and in arranging the tour.

Programme of Work

4. The Committee held its first meeting on the 7th July, 1959, when it discussed the plan of work and the staff requirements. In the second meeting held on the 4th August, 1959, a draft questionnaire was discussed and finalised. The questionnaire (Appendix B) was issued to all the State Governments M.B594MofF&A—2(a)

APPENDIX 'B'

Questionnaire issued by the Wastelands Survey and Reclamation Committee

1. What is the total area of culturable wasteland in your State ?

(Culturable wasteland is defined as under :—

All lands available for cultivation, whether not taken up for cultivation or abandoned after a few years for one reason or the other. Such lands may be either fallow or covered with shrubs and jungles and which are not put to any use. They may be assessed or unassessed or may be in isolated blocks or within cultivated holdings. Land once cultivated but not cultivated for five years in succession is included in this category).

2. What is the area under permanent pastures and other grazing lands ?

3. What is the extent of land under miscellaneous trees and groves ?

4. What is the extent of fallow lands other than current fallows ?

(Current fallows are defined as those lands which remain fallow for the current year only.

Lands other than current fallows are defined as lands which are fallow for more than one year but less than five years).

5. Out of the areas at questions 1, 2, 3 and 4 above, is it possible to demarcate blocks of 1,000 acres or more for purposes of colonization and resettlement? If so, how many such blocks ?

6. How many blocks could be carved out if the size of the block is reduced from 1,000 acres and more to 500 acres and more ? So far as blocks of 1,000 acres or more are concerned, please give details of each block in the form at Appendix 'A' attached.

7. Have any colonization and resettlement operations been carried out in your State during the last 10 years ? If so, please give details of areas colonized and resettled, the number of persons resettled, the location of the colonized areas, terms of allotment, and whether the colonization has been successful. The extent of financial assistance given to settlers may also be indicated.

8. Any other remarks that the State Government may like to make in the light of the terms of reference of the Committee.

APPENDIX 'A' VIDE ITEM 6 OF THE QUESTIONNAIRE

STATE :

DISTRICT :

Details in respect of Block No. _____ consisting of
1,000 acres or more

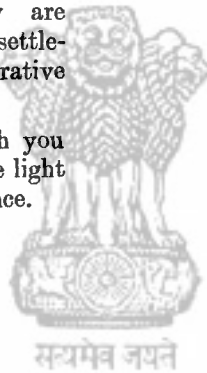
(Where blocks of 1,000 acres or more lie contiguously, a single form can be used for the entire area ; otherwise separate forms should be used for each block of land).

1. Where is the block located ?
(Here mention the nearest village or town and the Revenue Tehsil in which the block is located).
2. Is the area included in any Community Development Block ? If so, please give the name of the Block.
3. What is the nearest Railway Station and the distance of the Station from the block ?
4. What is the nearest Post Office and the distance of the Post Office from the block ?
5. What is the nearest Telegraph Office and the distance of the Telegraph Office from the block ?
6. Is the block connected by road with adjoining villages and towns ?
7. If so, is the road fair-weather or all-weather ?
8. What is the total area of the block ? (If possible, please also supply a map of the block).
9. How much of the area belongs to Government or is with the Panchayats ?
10. How much of the area is privately owned ?

11. Is it necessary to acquire the whole or part of the land which is privately owned, in order to carry out the Colonization operations in the block successfully ?
12. If so, what would be the likely cost of aquisition ?
13. Is the area of the land suitable for cultivation as it is, or would it be necessary to do some reclamation work before it could be allotted ?
14. If reclamation work is necessary, indicate whether the land is infested with jungle or with weeds or with shrubs and bushes.
15. Whether the land could be reclaimed with the use of manual labour or will it require reclamation by heavy tractors ? If the former, is adequate labour locally available ?
16. If there are no trees or weeds or shrubs and bushes on the land, is the land eroded ? If eroded, please indicate the extent of erosion and the soil conservation measures necessary to make it fit for cultivation.
17. What would be the approximate cost of reclamation or soil conservation per acre of land in the block ?
18. What is the type of soil in the block ? (alluviums, black, red or lateritic).
19. Is the land flat or gently sloping or steep ? What is the depth of the soil ?
20. What crops are grown in the area round about the block ?

21. What is the yield per acre of each crop ?
22. What is the nearest marketing centre for these crops ?
23. What is the extent and distribution of rainfall in the area ?
24. Can irrigation facilities be made available for the block ? If so, what kind of facilities ?
25. Whether these irrigation facilities will be perennial or non-perennial ?
26. If no irrigation facilities exist at present, whether any irrigation projects likely to be taken up in Third Year plan will cover this land ?
27. What is the depth of sub-soil water ? Is water sweet or brackish ?
28. Are anti-malarial operations necessary in the area for successful colonization ?
29. Is any endemic disease prevalent in the area ? If so, do the State Government contemplate any measures to combat this disease ?
30. Is drinking water available in the block ?
31. Are there any drinking water wells in use ?
32. Is the area subject to depredations of wild animals ? If so, what animals ?
33. Is the Block likely to attract settlers from distant places in the State or from other States ?
34. If the block is not likely to attract settlers from distant places in the State or from other States, what kind of settlers would you recommend for colonization of the block ?

35. Do you think educated unemployed could be successfully settled in the block ?
36. What should be the unit of allotment per settler ?
37. Would you suggest that the settlers should put up their home-steads on allotted lands, or would you like to set up *abadis* for them ? If the latter, what should be the unit of allotment for residential purposes in the village *abadi* ?
38. Would it be necessary to organise any training for the settlers, before they are allotted land ? (the settlement will be on cooperative basis).
39. Any other details which you may like to give in the light of the terms of reference.



APPENDIX 'C'

DR. B. N. UPPAL,
CHAIRMAN, WASTELANDS SURVEY
& RECLAMATION COMMITTEE.

D. O. NO. F.

/59-WLS & RC.

GOVERNMENT OF INDIA

MINISTRY OF FOOD AND AGRICULTURE
DEPARTMENT OF AGRICULTURE

'KRISHI BHAVAN'

New Delhi, January 2, 1960

Pous 12, 1881

DEAR SHRI

Kindly refer to my letter of even number dated the 10th August 1959, with which a copy of the questionnaire issued by the Committee was forwarded to you.

2. According to the questionnaire, the State Government was required to demarcate blocks of 1,000 acres or more out of the total area under "culturable waste", "permanent pastures and other grazing lands", "miscellaneous trees and groves" and "fallows other than current fallows", and to give full details of the blocks so selected in appendix 'A' attached to the questionnaire. The size of blocks was fixed at 1,000 acres or more as it was felt by the Committee that a sufficient number of blocks of this size would be available in all the States. The information now received from some of the States and our discussions with Liaison Officers of the States of Madhya Pradesh, Bihar and Orissa have led us to think that the availability of culturable waste land in blocks of 1,000 acres or more for purposes of reclamation and resettlement may be limited. We have, therefore, decided to collect information as in appendix 'A' to the questionnaire issued with the Committee's letter referred to above, for all blocks measuring 250 acres or more.

3. While obtaining this information from the districts, it may be useful to get a certificate from the district officers that the areas other than those in blocks of 250 acres or more out of the total areas under the categories mentioned in para 2 above, are scattered in bits measuring less than 250 acres.

4. I am to request that urgent steps may kindly be taken to collect the required information in respect of blocks measuring 250 acres or more so that the requisite information is available to the Committee by the 31st January 1960. In view of the fact that the Committee is required to complete its work within the next six months, it is requested that the information may kindly, be obtained on a priority basis by deputing some officials to the different districts, if necessary. This should not, however, delay the despatch of information in regard to blocks measuring 1,000 acres or more, which may have already been collected.

5. It appears that the term 'contiguous' used in Appendix 'A' to the questionnaire sent to the States along with our letter of even number dated the 10th August, 1959, requires elucidation. I may observe that even if a block is interspersed with a few cultivators' holdings or some natural obstructions, it should be considered more or less compact or 'contiguous' so long as the operations for the reclamation of land included in it can be undertaken on an economic basis.

Yours sincerely,

(Sd.) B. N. UPPAL,

All Liaison Officers
in the States and Union Territories.

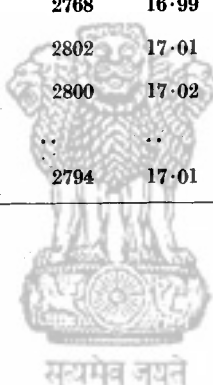


APPENDIX 'D'

Average yield per acre of the principal crops in Kerala—1957-58 crops

District	Crops						
	Rice	Tapioca (lbs.)	Coconut (numbers)	Cashew- nut (lbs.)	Carda- mom (lbs.)	Pepper (lbs.)	Rubber*
Trivandrum	14.35	76.55	2677	17.02	..	380.3	487.2
Quilon ..	13.84	76.56	3052	17.01	..	402.3	332.4
Alleppy ..	N.A.	76.54	2983	17.01	..	402.1	..
Kottayam ..	15.27	76.57	2394	17.01	39.9	374.8	264.4
Ernakulam ..	N.A.	76.56	2919	17.01	39.8	381.3	..
Trichur ..	11.58	76.53	2690	17.01	..	215.7	202.6
Palghat ..	11.63	76.45	2768	16.99	40.3	179.3	..
Kozhikode ..	11.63	76.59	2802	17.01	40.2	180.0	..
Cannanore ..	11.61	76.82	2800	17.02	39.8	180.3	..
Malabar ..	..	..	..	..	..	..	146.9
State ..	12.40	76.56	2794	17.01	39.9	259.4	265.5

* Figures relate to the year 1956.
N.A.—Not available.



APPENDIX 'E'

Land utilisation statistics for Kerala for the year 1956-57

Serial No.	District	Total geographical area		Forests	Land not available for cultivation		Other uncultivated land excluding fallows			Current fallows	Fallows other than current fallows	Net area sown	
		By professional survey	By village papers		Barren and unculturable land	Land put to non-agricultural use	Culturable waste	Permanent pastures and other grazing lands	Land under miscellaneous trees, crops and groves				
1	Trivandrum	..	5,41,632	5,33,983	1,01,703	31,057	29,245	6,772	..	1,880	5,704	8,119	3,48,503
2	Quilon	..	16,53,184	15,86,496	5,69,246	54,225	59,016	4,993	9,518	26,715	28,064	11,874	8,22,845
3	Kottayam	..	19,37,408	18,78,899	6,39,215	98,534	42,718	1,08,307	16,358	76,666	24,051	1,836	8,65,214
4	Trichur	..	11,39,840	10,91,455	3,15,224	37,548	60,600	14,570	14,258	7,927	15,712	7,904	6,17,712
5	Palghat	..	12,62,784	12,61,285	2,56,424	71,383	1,51,460	60,567	16,154	57,181	23,505	36,499	5,88,112
6	Kozhikode	..	16,34,814	16,34,814	3,91,361	1,05,724	62,225	1,11,240	8,598	1,29,408	42,738	30,659	7,52,861
7	Cannanore	..	14,24,960	14,24,960	1,85,250	98,835	97,800	1,30,749	55,703	2,08,595	13,960	1,04,253	5,29,815
Total		..	95,94,622	94,11,892	24,58,423	4,97,306	5,03,064	4,37,198	1,20,589	5,08,372	1,54,734	2,07,144	45,25,062

N.B.—The above figures relate to seven districts only as the districts of Alleppy and Ernakulam came into being during 1958-59.

APPENDIX 'F'

Statement showing details of blocks offered for reclamation in Kerala

District	Name of block	Block No.	Nearest railway station	Accessible by fair/all weather road	Whether included in C.D. lock	Area (Acres)	Amount of rainfall (inches)	Depth and nature of sub-soil water	Endemic disease
Kozhikode	.. Pannikode Amsom	1	Kozhikode ..	.. No road	.. Yes	3323	110	N.A.	No
Trichur	.. Periyaram	2	Chalakudy ..	.. All weather	.. Yes	500	130—135	40/sweet	No
Palghat	.. Pudur Amsom	3	Coimbatore ..	.. Fair weather	.. Yes	500	130—150	30/sweet	No
	.. Agali Amsom	4	Coimbatore ..	.. Fair weather	.. Yes	500	130—150	30/sweet	No
Ernakulam	.. Elankunnappuzha	5	Cochin Harbour Terminus.	.. All weather	.. Yes	500	120	10/sweet	Yes
Kottayam	.. Munnar Area	6	Marayoor, Mankolam and Kanthalloor.	.. No road	.. No	42604	75—150	N.A.	..
Trivandrum	.. Veli Kayal	7	Trivandrum All weather	.. Yes	8000	70	20/sweet	No

N.A.—Not available.





PART VII

KERALA

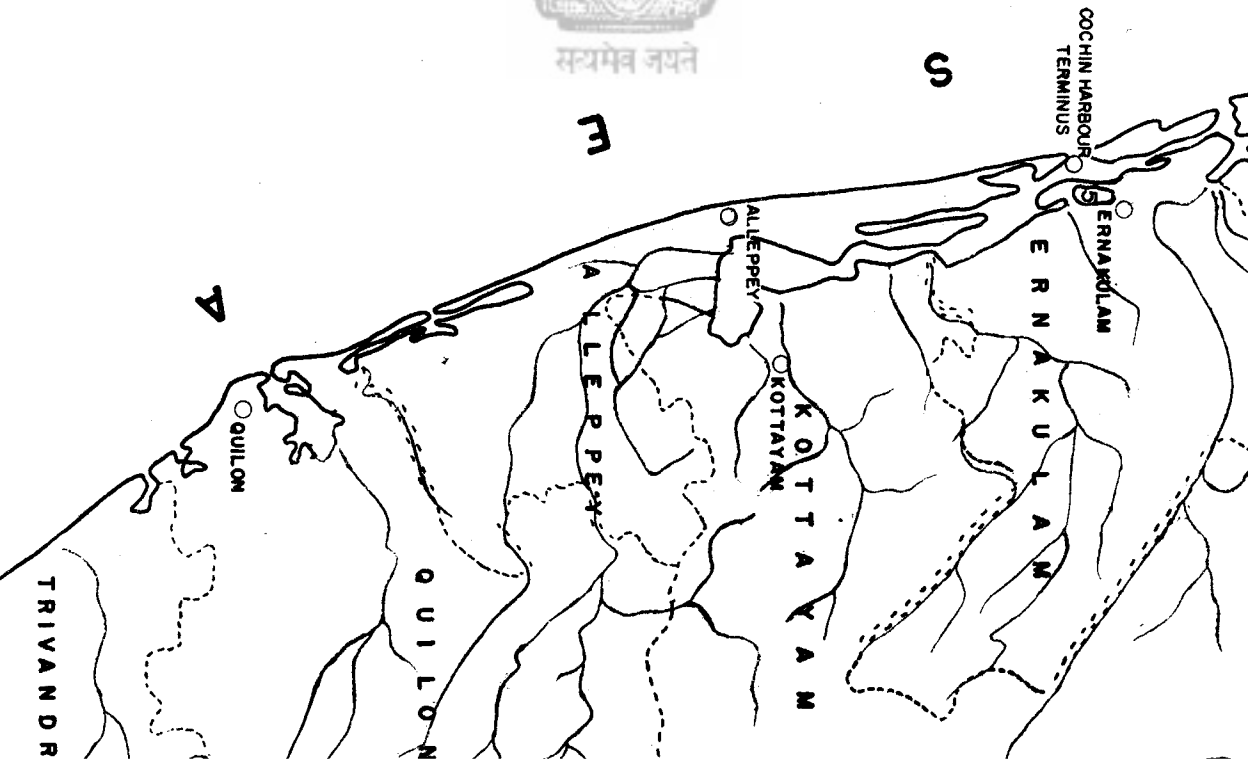


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REFERENCE

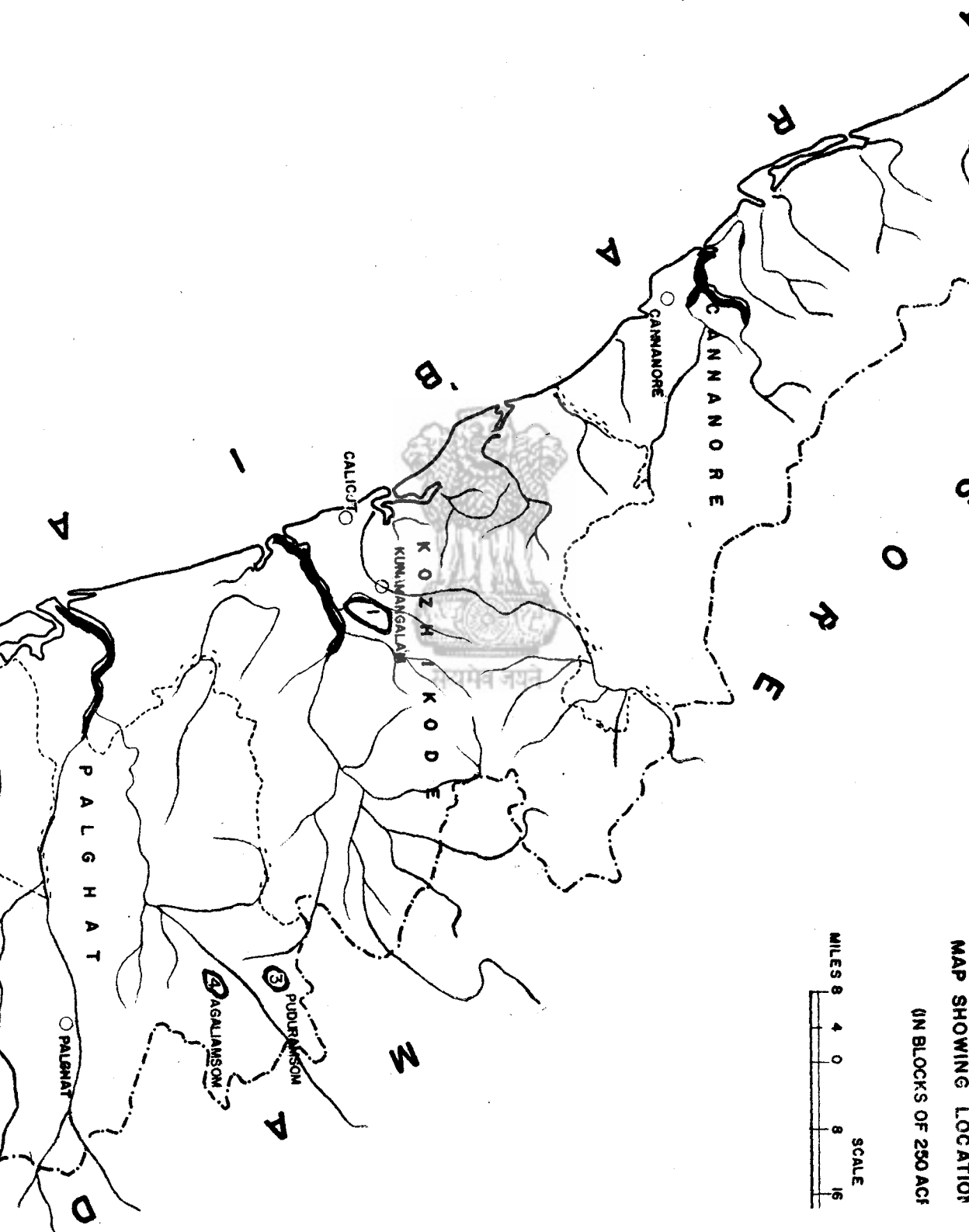
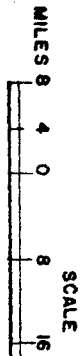
-  STATE BOUNDARY
-  DISTRICT BOUNDARY
-  RIVERS
-  BLOCKS OF WASTELAND

BLOCK NO	AREA
1	3,323
2	500
3	500
4	500
5	500
6	42,604
7	8,000
TOTAL	55,927



MAP SHOWING LOCATION

(IN BLOCKS OF 250 AC)



12°

11°

7 5° 7 6° 7 7° 7 8° 7 9°

SOIL ZONES OF KERALA

SHOWING RAIN FALL DISTRIBUTION

